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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/781,283	02/13/2001	Pei Reng Jeng	MR1035-820	9464
4586 7590	07/30/2003			
ROSENBERG, KLEIN & LEE 3458 ELLICOTT CENTER DRIVE-SUITE 101 ELLICOTT CITY, MD 21043			EXAMINER	
			ESTRADA, MICHELLE	
			ART UNIT	PAPER NUMBER
			2823	
			DATE MAILED: 07/30/2003	

Please find below and/or attached an Office communication concerning this application or proceeding.

Application No.		4	V			
### Defice Action Summary    Examiner   Michelle   Estrada   2823		Application No.	Applicant(s)			
Michelle Estrada   2823   Period for Reply		09/781,283	JENG ET AL.			
Period for Reply  A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.  Edestions to the many be evaluate unter the provision of 3 CFR 1.136(a). In an evert, however, may a neity be timely filed after 50 kg) MCNT15 from the mailing date of this communication.  Edestions to the many be evaluated unter the provision of 3 CFR 1.136(a). In an evert, however, may a neity be timely filed after 50 kg) MCNT15 from the mailing date of this communication.  Edestions to the many be evaluated unter the provision of 3 CFR 1.136(a). In an evert, however, may a neity be timely filed after 50 kg) MCNT15 from the mailing date of this communication.  If NO period for relay is specified dows, the measurem authory period will agric with 10 kg and	Office Action Summary	Examiner	Art Unit			
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THE MAILING DATE OF THIS COMMUNICATION.  - Edemains of term may be waited builder the provisions of 3 CPR 1.38(a). In no event, however, may a reply bet linely filled after SX (8) MONITS from the mailing date of the communication.  - Edemains of the mailing date of the communication and the state of the communication.  - Failure to reply within the safe or extended period for reply will. by statutory primary and six (9) MONITS from the mailing date of this communication.  - Failure to reply within the safe or extended period for reply will. by statutory and the safe primary and state the safe or extended period for reply will. by statutory and the safe primary and state the safe primary state of the safe primary state of the safe primary state.  - Failure to reply within the safe or extended period for reply will. by statutor as the safe primary state of the safe primary state.  - Averyely sceeded by the Ottoe state than three mainty and start for mailing date of this communication, even it tendy fred, may reduce any security states.  - Averyely sceeded by the State state than the safe primary states.  - Averyely sceeded by the State state state states and states.  - Averyely sceeded by the State states and states are states.  - The safe states are states and states are states and states are states.  - The safe states are states are states and states are states.  - Application of Claims.  - Application states are subject to the states and states are states.  - Application Papers  - Application states are subject to the states and states.  - Application Papers  - Application states are subject to states and states.  - Application states are subject to states and states.  - Application states are subject to states and states.  - Application states are subject to states and states.  - Application states are subject to states and states.  - Application states are states and states and states are subject and states.  - Application states a	The state of the s	ears on the cover sneet with the	correspondence address			
2a)  This action is FINAL. 2b)  This action is non-final.  3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.  Disposition of Claims  4)  Claim(s)  1-4 and 9-15 is/are pending in the application.  4a) Of the above claim(s)  is/are allowed.  5)  Claim(s)  is/are allowed.  6)  Claim(s)  is/are rejected.  7)  Claim(s)  is/are objected to.  8)  Claim(s)  is/are objected to.  8)  Claim(s)  is/are objected to by the Examiner.  10)  The specification is objected to by the Examiner.  10)  The drawing(s) filed on  is/are: a) accepted or b) objected to by the Examiner.  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  11)  The proposed drawing correction filed on  is: a) approved by the Examiner.  If approved, corrected drawings are required in reply to this Office action.  12)  The oath or declaration is objected to by the Examiner.  Priority under 35 U.S.C. § 119 and 120  13)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a)  All b)  Some * c) None of:  1.  Certified copies of the priority documents have been received.  2.  Certified copies of the priority documents have been received in Application No.  papilication from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a)  The translation of the foreign language provisional application has been received.  15)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 120 and/or 121.  Attachment(s)	THE MAILING DATE OF THIS COMMUNICATION.  - Extensions of time may be available under the provisions of 37 CFR 1.13 after SIX (6) MONTHS from the mailing date of this communication.  - If the period for reply specified above is less than thirty (30) days, a reply - If NO period for reply is specified above, the maximum statutory period w Failure to reply within the set or extended period for reply will, by statute, - Any reply received by the Office later than three months after the mailing earned patent term adjustment. See 37 CFR 1.704(b).	86(a). In no event, however, may a reply be to within the statutory minimum of thirty (30) darill apply and will expire SIX (6) MONTHS from cause the application to become ABANDON	imely filed  ays will be considered timely.  In the mailing date of this communication.  ED (35 U.S.C. § 133).			
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1. Certified copies of the priority documents have been received.  2. Certified copies of the priority documents have been received in Application No  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.  14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  a) The translation of the foreign language provisional application has been received.  15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.  Attachment(s)  1) Notice of References Cited (PTO-892)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  1) Information Disclosure Statement(s) (PTO-1449) Paper No(s)  6) Other:	13) Acknowledgment is made of a claim for foreign	priority under 35 U.S.C. § 119(	a)-(d) or (f).			
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	Notice of Draftsperson's Patent Drawing Review (PTO-948)     Information Disclosure Statement(s) (PTO-1449) Paper No(s)	5) Notice of Informal				

## **DETAILED ACTION**

## Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4 and 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Andideh, Ang et al. and Mei et al. (6,475,895).

Andideh discloses providing a semiconductor substrate already completing the basic process of forming devices 100 such as a field oxide 102, a source, a drain, and a gate thereon (Col. 1, lines 22-24 and Fig. 1d); wherein the gate comprises a tunneling oxide layer, a floating gate, a dielectric layer and a control gate; forming a dielectric layer 103 (BPSG or PSG) used as an inter-layer dielectric on said semiconductor substrate, lapping said dielectric layer by means of a chemical mechanical polishing; and forming an oxide layer 106.

Andideh does not disclose forming a cap layer of high refractive index on said lapped dielectric layer.

Ang et al. disclose semiconductor structure 10 that includes exposed semiconductor devices or interconnect lines 12 which can be comprised of aluminum; forming an ILD 16/18 and chemical-mechanical polishing 18 which can be comprised of FSG or a low K dielectric layer (Col. 3, lines 35-36); and forming a capping layer 20 that may be comprised of silicon nitride, silicon oxynitride or silicon-rich oxide (SRO).

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It would have been within the scope of one of ordinary skill in the art to combine the teachings of the references to form the capping layer of Ang et al. on the polished inter-layer dielectric of Andideh to enable formation of an ILD as disclosed by Andideh.

The combination of Andideh and Ang et al. does not specifically disclose that the cap silicon oxynitride layer have a refractive index of at least 1.6, wherein said cap layer is translucent to ultra-violet light.

Mei et al. disclose forming metal structures (46/48/50) of aluminum, aluminum alloy or copper; forming an insulating layer (52); and forming a silicon oxynitride layer (56) having a refractive index of at least 1.6 and is translucent to UV light (Col. 4, lines 15-17).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Andideh, Ang et al. and Mei et al. to enable formation of the cap layer, and further silicon oxynitride cap layer has a hard surface to provide physical and mechanical protection for the underlying device.

The examiner takes official notice that the use of polysilicon material in floating gates and control gates was known at the time of the applicant's invention. It would have been within the scope of one of ordinary skill in the art to use the known material for its known intended purpose to achieve the formation of the floating and control gates of the combination.

The examiner takes official notice that the use of PECVD silicon oxide layer and tetraethyl-orthosilicate layer to form an inter-metal dielectric was known at the time of the applicant's invention. It would have been within the scope of one of ordinary skill in

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the art to use the known layers for its known intended purpose to achieve the formation of the inter-metal dielectric layer of the combination.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Estrada whose telephone number is (703) 308-0729. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

George Fourson
Primary Examiner
Art Unit 2823

1/W MEstrada July 15, 2003